

Appl. No. : **10/696,244**
Filed : **October 28, 2003**

SUMMARY OF INTERVIEW

Applicants thank the Examiner for the telephone interview conducted on October 4, 2004 with Andrew Merickel. In the interview the language of Claim 1 was discussed in view of the Chen reference and Applicants agreed to submit an amendment clarifying that if the first film deposited is a diffusion barrier film the second film deposit will be a metal film and vice versa. The present amendment to Claim 1 is consistent with this discussion.

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REMARKS

Reconsideration of the final rejection is respectfully requested in view of the present clarifying amendment to Claim 1. Claims 1-18 are pending in this application. Claim 1 has been amended to clarify that if the first film that is deposited is a diffusion barrier film the second film deposited will be a metal film and if the first film deposited is a metal film the second film deposited will be a diffusion barrier film. Claim 2 has been amended to independent form. No new matter is added by the amendments.

Applicants submit that this application is in condition for allowance and such action is earnestly requested. The Examiner's reasons for rejection are addressed below.

Allowable Subject Matter

Applicants note with appreciation that Claims 4-18 are allowed and that Claims 2 and 3 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Claim 2 has been rewritten to include the limitations of Claim 1. Claim 3 depends from Claim 2 and therefore includes all of the limitations of Claims 2 in addition to further distinguishing features. Applicants respectfully submit that in view of the amendment, Claims 2 and 3 are now allowable.

Rejection of the Claims

A. Chen

Claim 1 was rejected under 35 U.S.C. §102(a) or, alternatively, 35 U.S.C. §103(a), as being unpatentable over Chen et al. ("Chen"). The Examiner found that Chen ("THE EFFECT OF SURFACE OXIDES ON Cu/Ta INTERFACIAL INTERACTIONS") teaches a method for manufacturing a semiconductor device, the method comprising, in sequence, the steps of providing a semiconductor substrate, the substrate comprising a first film, the first film being a metal (i.e., Ta) film; exposing the substrate of Ta to an oxygen-containing reactant to create a surface termination of about one monolayer of oxygen-containing groups; and depositing a second film (i.e., Cu) onto the substrate, such that the oxygen-containing groups form a bridge (i.e., wetting interface) between the first film and the second film.

Claim 1 has been amended to clarify the invention by explicitly reciting that if the first film is a diffusion barrier film, the second film is a metal film, and if the first film is a metal film,

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the second film is a diffusion barrier film. Claim 1 already recited that the first film is one of a diffusion barrier and a metal film. Claim 1 is fully supported by the specification as filed, for example at paragraph 31.

The claim as a whole teaches deposition of a metal film and a diffusion barrier film with an oxygen bridge between them. As this is not taught or suggested by Chen, Applicants respectfully request that the rejection of Claim 1 be withdrawn.

B. Raaijmakers

Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,727,169 to Raaijmakers et al. ("Raaijmakers"). Raaijmakers is only available as prior art under 35 U.S.C. §102(e). Under 35 U.S.C. §103(c), "subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." Raaijmakers and the presently claimed invention were, at the time the invention was made, subject to an obligation of assignment to the same person. Accordingly, Raaijmakers is not available as prior art under 35 U.S.C. §103(a) and Applicants respectfully request that the rejection be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that present the Application is in condition for allowance and request the same. If, however, some issue remains that the Examiner feels could be addressed by Examiner's amendment, the Examiner is cordially invited to call the undersigned for authorization.

Respectfully submitted,

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